

AIR FORCE QUALIFICATION TRAINING PACKAGE (AFQTP)



for
**PAVEMENTS AND CONSTRUCTION EQUIPMENT OPERATOR
(3E2X1)**

MODULE 9
**AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH)
PROGRAM**

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AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM

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Career Field Education and Training Plan (CFETP) references from 1 Apr 97 version.
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Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

AIR FORCE QUALIFICATION TRAINING PACKAGES for PAVEMENTS AND CONSTRUCTION EQUIPMENT OPERATOR (3E2X1)

INTRODUCTION

Before starting this AFQTP, refer to and read the “Trainee/Trainer Guide” located on the AFCESA Web site <http://www.afcesa.af.mil/>

AFQTPs are mandatory and must be completed to fulfill task knowledge requirements on core and diamond tasks for upgrade training. *It is important for the trainer and trainee to understand* that an AFQTP does not replace hands-on training, nor will completion of an AFQTP meet the requirement for core task certification. AFQTPs will be used in conjunction with applicable technical references and hands-on training.

AFQTPs and Certification and Testing (CerTest) must be used as minimum upgrade requirements for Diamond tasks.

MANDATORY minimum upgrade requirements:

Core task:

AFQTP completion
Hands-on certification

Diamond task:

AFQTP completion
CerTest completion (80% minimum to pass)

Note: *Trainees will receive hands-on certification training for Diamond Tasks when equipment becomes available either at home station or at a TDY location.*

Put this package to use. Subject matter experts under the direction and guidance of HQ AFCESA/CEOT revised this AFQTP. If you have any recommendations for improving this document, please contact the Career Field Manager at the address below.

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USE PROTECTIVE EQUIPMENT SUCH AS:

MODULE 9

AFQTP UNIT 4

EYE PROTECTORS (9.4.1.)

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EYE PROTECTORS***Task Training Guide***

STS Reference Number/Title:	9.4.1. Eye Protectors
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Eye Protectors
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to correctly utilize eye protection equipment
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should correctly utilize eye protection equipment
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

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EYE PROTECTORS

Background: Eye protection is generally considered the single most important piece of personal protective equipment (PPE). Personnel will be provided and should use the appropriate eye or face protection when exposed to hazards from flying particles, molten metal, liquid chemicals, corrosives, caustics, chemical gases, vapors, or potentially injurious light radiation. This requirement also applies to management, supervisors, and visitors while they are within the hazardous area. Selection of safety equipment should be based on the kind and degree of hazard present.

NOTE:

Whenever a task is above eye level and the worker must look up into the area being worked on, eye protection is required to protect against small particles of falling debris.

Protective equipment must meet the following minimum requirements:

- Provide adequate protection against the particular hazards for which they are designed.
- Be reasonably comfortable when worn under designed conditions.
- Fit snugly without interfering with the movements or vision of the wearer.
- Be durable.
- Be capable of being disinfected (unless disposable items are used).
- Be easily cleaned.
- Be kept clean and in good repair.

NOTE:

Protective eye and face devices must comply with the American National Standards Institute (ANSI) Standard Z87.1-1989, Practice for Occupational and Educational Eye and Face Protection.

- Supervisors will ensure all eye and face protection properly fits their employees before use in hazardous area.
- Eye and face protection must have the manufacturer's identification clearly marked on the equipment.
- The manufacturer is responsible for notifying the user of any limitations or precautions and these notifications should be closely observed.
- Metal-framed glasses will be secured with a cord or strap to prevent them from falling into energized circuitry.
- Safety spectacles are designed with special sturdy frames. Normal street frames with safety lenses are not acceptable substitutes and will not be worn.
- Qualified optical personnel will fit prescription safety spectacles.

Eye goggle headbands that are slack, worn out, sweat soaked, knotted, or twisted will be replaced when they no longer hold the goggles in the proper position.

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Employees who wear prescription lenses will be provided eye protection that incorporates the prescription in its design, or will wear eye protection that can be worn over the prescription lenses. The protective equipment must not interfere with the wearer's vision or proper position of the protective equipment. Contact lenses, by themselves, do not provide eye protection and shall not be worn in eye hazard work environments without the use of appropriate safety eye wear. Contact lenses will not be worn in contaminated atmospheres where respirators are required. Supervisors shall coordinate with the Bio-Environmental Engineer (BEE) to determine if contact lenses may or may not be worn where no definitive guidance is given. When working with potentially injurious light radiation, affected employees will wear personal protective equipment (PPE) with filtered lenses that have a shade number appropriate to the protection required.

Face shields shall only be used as primary eye and face protection in areas where splashing, rather than impact resistance, is the problem. In the case of secondary protection, other protective devices, such as safety goggles will be worn. Pitted or scratched lenses that reduce visibility should be removed from service and not used. Reduced vision, as a result of dirty lenses, can become a contributory factor to a mishap. Employees should clean the lenses of eye protection equipment as frequently as necessary to eliminate visibility impairment.

NOTE:

Previously used PPE should be disinfected before being reissued to another employee.

Several methods for disinfecting eye-protective equipment are acceptable. Employees will maintain and disinfect eye and/or face protection equipment. The most effective method is to follow these instructions accordingly.

Disassemble the goggles or spectacles and thoroughly clean all parts with soap and warm water.

- Carefully rinse all traces of soap, and replace defective parts with new ones.
- Swab thoroughly or immerse all parts for 10 minutes in a solution of germicidal deodorant fungicide.
- Remove parts from solution and suspend in clean place after air-drying at room temperature or with heated air. (Do not rinse after removing parts from the solution because this will remove the germicidal residue, which retains its effectiveness after drying.)
- Ultraviolet disinfecting equipment or spray type disinfecting solutions may be used in conjunction with the washing procedure.

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**Review Questions
for
Eye Protectors**

Question	Answer
1. What is generally considered the “single most important piece of personal protective equipment?”	a. Hearing Protection b. Hand Protection c. Foot Protection d. Eye Protection
2. What procedures must be followed when wearing metal-framed eye protection near an energized circuit?	a. Secure eye protection to head b. Remove eye protection c. Change eye protection d. Wear a face shield
3. Normal street frames with safety lenses may be substituted for safety spectacles.	a. True b. False
4. Goggles and spectacles should be cleaned with soap and warm water.	a. True b. False

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EYE PROTECTORS

Performance Checklist		
Step	Yes	No
1. Does the trainee know the importance of eye wear?		
2. Did the trainee check the devices for compliance with the American National Standards Institute?		
3. Does the trainee know how to secure metal frame glasses?		
4. Did the trainee correctly utilize eye protection equipment?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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USE PROTECTIVE EQUIPMENT SUCH AS:

MODULE 9

AFQTP UNIT 4

EAR PROTECTORS (9.4.2.)

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EAR PROTECTORS***Task Training Guide***

STS Reference Number/Title:	9.4.2. Ear Protectors
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Ear Protectors
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to correctly utilize ear protection equipment
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should correctly utilize ear protection equipment
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

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EAR PROTECTORS

Background: It is mandatory to use hearing protection without fail in areas where the noise level is continuously high. These areas can be on or near the flightline, when operating heavy equipment, and even using power tools. A sound of moderate intensity encountered for prolonged periods can be as dangerous to your hearing as that of high-intensity sound encountered for a short period of time. The best thing to do with earplugs is to keep them clean and use them. In some cases, earmuffs are provided for extra protection.

Appropriate hearing protection shall be used where employees are in designated hazardous noise areas with operating noise sources, or using tools or equipment labeled as hazardous noise producers. The base Bio-Environmental Engineering Services (BEES) can be contacted for noise level surveys and guidance on the type of hearing protection required. The BEES will inspect noise hazard areas and provide supervision and the host safety office copies of written reports.

Hearing protective devices include the following:

Insert Type Earplugs. Insert type earplugs are designed to provide a seal with the ear canal. There are three types of insert earplugs:

- **Premolded Type EarPlugs.**

Premolded earplugs are pliable devices of fixed proportions. Two standard styles, V-51R (single flange) and triple flange, come in various sizes, and will fit most people. Personnel responsible for fitting and dispensing earplugs will train users on proper insertion, wear, and hygiene. While premolded earplugs are reusable, they may deteriorate with time and will need replacement.

- **Formable EarPlugs.**

Formable earplugs come in just one size. Some are made of material that after being compressed and inserted expands to form a seal in the ear canal. When properly inserted, they provide noise decrease values that are similar to those from correctly fitted premolded earplugs. The formable earplugs are usually considered disposable, and therefore are more expensive for long-term routine use. Individual units may procure approved formable earplugs. Supervisors shall instruct users on the proper use of these plugs prior to routine use. Each earplug must be held in place while it expands enough to remain firmly seated. These earplugs may be washed and therefore are reusable, but will have to be replaced after 2 or 3 weeks, or when they no longer form an airtight seal when properly inserted.

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- **Custom Ear Plugs.**

A small percentage of the Air Force population cannot be fitted with standard premolded or formable earplugs. Custom earplugs can be made to fit the exact size and shape of the individual's ear canal. Individuals needing custom earplugs should be referred to an audiologist at an authorized Hearing Conservation Diagnostic Center or Hearing Conservation Center.

- **Earmuffs.**

Are worn over the ear to reduce the level of noise that reaches the ear. Their effectiveness depends on a tight seal between the cushion and the head.

- **Care and Maintenance.**

Reusable earplugs, such as the V51R, triple-flange, or formable devices, should be washed in lukewarm water using hand soap, rinsed in clean water, and dried thoroughly before next use. Wet or damp earplugs should not be placed in their containers. Cleaning should be done regularly. Earmuff cushions should be kept clean. The plastic or foam cushions may be cleaned in the same way as earplugs, but the inside of the earmuff should not get wet. When not in use, earmuffs should be placed in open air so any moisture that may have collected in the cups is allowed to evaporate. Earmuff cushions should not be stored while compressed.

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**Review Questions
for
Ear Protectors**

Question	Answer
1. The only sounds dangerous to hearing are high-intensity sounds.	a. True b. False
2. Formable earplugs are not reusable.	a. True b. False
3. You should not get earmuffs wet.	a. True b. False
4. There are _____ types of insert earplugs.	a. 2 b. 3 c. 4 d. 5

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EAR PROTECTORS

Performance Checklist		
Step	Yes	No
1. Did the trainee correctly use ear protection equipment?		
2. Does the trainee know to contact the Bio-Environmental Engineering Services (BEES) for noise level surveys?		
3. Does the trainee know the three types of earplugs that are designed to provide a seal with the ear canal?		
4. Does the trainee know how to care for hearing protection equipment?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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USE PROTECTIVE EQUIPMENT SUCH AS:

MODULE 9

AFQTP UNIT 4

SAFETY HELMETS (9.4.3.)

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SAFETY HELMETS***Task Training Guide***

STS Reference Number/Title:	9.4.3. Safety Helmets
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Safety Helmet
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to correctly utilize a safety helmet
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should correctly utilize a safety helmet
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

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SAFETY HELMETS

Background: Personnel working in areas where there is a potential for injury from falling, flying objects, bumping head against a fixed object, electrical shock or burns shall be provided and should use protective helmets. Typical examples of these areas are construction sites and warehouses. Protective helmets must comply with ANSI Standard Z89.1-1986, *Standard for Personal Protective Headwear for Industrial Workers Requirements*.

Safety Helmets (Hard Hats)

- These hats provide protection from impact and penetration of falling and flying objects and from high-voltage electric shock and burn. Most construction and job sites require the use of helmets. The main components consist of a protective shell, inside suspension system designed to act as an energy-absorbing mechanism, and a chinstrap to secure the helmet to the head. Hard hats shall provide the level of protection specified by ANSI Standard Z89.1. The manufacturer's name, ANSI Z89.1, and the class (A, B, or C) will be identified inside the shell. The crown strap shall form a cradle for supporting the helmet on the wearer's head. The distance between the top of the head and the underside of the shell should be adjusted to the manufacturer's requirement for the particular helmet being used. Any part of the helmet that comes into contact with the wearer's head must not be irritating to the skin. Helmets are available as Type I (with full brim) or Type II (without brim but may include a peak). Liners and hoods are available for cold weather use.

NOTE:

Special care should be taken when wearing hoods because they restrict a person's peripheral vision. This becomes especially hazardous when personnel are working on elevated surfaces.

ANSI Safety Helmet Classifications

- **Class A.** These helmets are intended to reduce the force of impact of falling objects and to reduce the danger of contact with exposed low-voltage conductors. Representative sample shells are proof tested at 2200 volts (phase to ground). Typically used in construction operations.
- **Class B.** These helmets are intended to reduce the force of impact of falling objects and to reduce the danger of contact with exposed low-voltage conductors. Representative sample shells are proof tested at 20,000 volts (phase to ground). Extensively used by electrical workers.
- **Class C.** These helmets are intended to reduce the force of impact of falling objects. This class offers no electrical protection. Used where there is no danger from electrical hazards.

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Color Identification

- Safety helmets will not be painted since the paint may hide cracks or defects in the outer shell and destroy or degrade the insulating characteristics. Helmets are manufactured in a wide variety of colors and units wishing to specify a particular color helmet must first contact the local ground safety office.

Identification Markers

- Affix identification markers on shells without making holes through the shell and without the use of any metal parts or metallic labels. (Holes could cause the helmet to fail the electrical insulation test [Class A or B] and degrade the impact design of the helmet).

NOTE:

The wearer should be able to identify the type of helmet by looking inside the shell for the manufacturer, ANSI designation, and class.

Use of Decals

- The use of decals on safety helmets is only authorized if approved by the unit's MAJCOM, DRU, or FOA. If approved by the MAJCOM, DRU, or FOA, the following restrictions will apply:
- Decals will be limited to unit or MAJCOM emblems and the individual's name.
- Decals or emblems should be the stick-on type only, no more than 3 inches in nominal diameter.
- Names should be stick-on with each letter no more than 1/2 inch by 1/2 inch.

Inspection

- Inspect safety helmets prior to each use. Any one of the following defects is cause for immediate removal from service:
- Suspension systems that show evidence of material cracking, tearing, fraying, or other signs of deterioration.
- Any cracks, perforations of brim or shell, deformation of shell, or evidence of exposure to excessive heat, chemicals, or radiation.
- Any accumulation of conductive material on or inside the shell that cannot be removed prior to use. This applies to helmets used in electrical hazardous environments.

Maintenance

- Some common maintenance procedures include doing the following:
- Do not place objects inside safety helmets between the shell and the suspension device. This space is designed into the helmet so impact force will not be transmitted to the head of the wearer.
- Keep safety helmets free of abrasions, scrapes, and nicks and do not deliberately drop, throw, or otherwise abuse them because this causes them to lose their protective qualities.
- Do not store helmets in direct sunlight as it may have an adverse effect on degree of protection offered.

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- A common method of cleaning shells is dipping them in hot water (approximately 140 degrees Fahrenheit) containing a good detergent for at least 1 minute. Shells should then be scrubbed and rinsed in clear hot water. After rinsing, carefully inspect the shell for any signs of damage. Dry with soft cloths or air dry.
- Do not drill ventilation holes in safety helmets.

NOTE:

Shells constructed of polymer plastics are susceptible to damage from ultraviolet light and gradual chemical degradation. This degradation first appears as a loss of surface gloss called chalking and with further deterioration, the surface will begin to flake away.

Chinstraps shall be made of non-conductive material and not be less than 12.7 mm (1/2 inch) in width. An adjustable chinstrap is designed to fit under the chin to secure the helmet to the head. Safety helmets are of little use if they do not fit securely on the head and remain in place when impacted by a falling object. The chinstrap shall be used whenever personnel are in an area where there is a possibility of impact and penetration by falling objects or high-voltage electrical shock and burns.

Bump caps are constructed of lightweight materials and are designed to provide minimal protection against bump hazards or minor blows to the head. They do not afford adequate protection from high impact forces or penetration by falling objects. Therefore, they shall not be used as a substitute for hard hats. Supervisors in conjunction with the installation ground safety office will determine their use.

Men and women, who work around chains, belts, rotating devices, suction devices, blowers, etc., shall cover their long hair to prevent it from being caught in machinery. While such devices are normally guarded, long hair can fit between the wire-mesh guard and be drawn into the moving machine parts.

The length of hair, which poses a hazard, varies with the operation being performed, and the control measures used. The supervisor should determine what constitutes an acceptable hair length. Normally, hair longer than 4 inches and in the proximity to moving components is considered hazardous. However, the supervisor may request assistance from the installation ground safety or Bio-Environmental Engineer for determination.

Bandannas, hairnets, and turbans may be used, providing they cover the hair completely and do not themselves present a hazard to the wearer. Soft caps may also be used, but should completely cover the hair.

NOTE:

The effect of long hair should be considered when conducting a workplace Job Safety Analysis.

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**Review Questions
for
Safety Helmets**

Question	Answer
1. Safety helmets provide protection from _____?	a. Impact of falling and flying objects b. Penetration of falling and flying objects c. High voltage electrical shock d. All the above
2. The distance between the top of the head and the underside of the shell should be adjusted to _____.	a. 1 inch b. 1 1/2 inches c. 2 inches d. Manufacturer's requirement
3. ANSI classifies safety helmets in _____ Classifications.	a. 2 b. 3 c. 4 d. 5
4. Safety helmets can be customized by painting and adding stickers.	a. True b. False

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SAFETY HELMETS

Performance Checklist		
Step	Yes	No
1. Does the trainee know how to correctly utilize a safety helmet?		
2. Does the trainee know hard hats shall provide the level of protection specified by ANSI Standard Z89.1?		
3. Does the trainee know the color codes for helmets?		
4. Does the trainee know proper maintenance procedures for helmets?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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USE PROTECTIVE EQUIPMENT SUCH AS:

MODULE 9

AFQTP UNIT 4

GLOVES (9.4.5.)

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GLOVES***Task Training Guide***

STS Reference Number/Title:	9.4.5. Gloves
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Gloves
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to correctly utilize gloves
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should correctly utilize gloves
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

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GLOVES

Background: When an employee's hands or arms are exposed to hazards such as those from skin absorption of harmful substances, severe cuts, lacerations, abrasions, punctures, chemical burns, or harmful temperature extremes, appropriate hand and/or arm protection shall be used. Sleeves, padded arm protectors, hand pads, and other items will be worn to protect the hands and arms from hot or sharp materials. There are a wide assortment of gloves, hand pads, sleeves, and wristlets for protection against various hazardous situations. Before purchasing any protective equipment, ensure the manufacturers recommended use for the glove matches the particular application and anticipated hazards involved. Supervisors shall base the selection of appropriate hand protection on the characteristics required relative to task being performed, dexterity required, conditions present, duration of use, frequency, physical stresses, limitations of protective clothing, and degree of exposure to identified hazards.

Multi-use

- Gloves are generally worn to protect the hands from injuries caused by handling sharp or jagged objects, wood, or similar hazard-producing materials. These gloves are usually made of cloth material (such as cotton flannel) with chrome leather palms and fingers or synthetic coating. All-leather gloves are also acceptable.

NOTE:

When a supervisor is unable to find the appropriate glove in the Air Force inventory, functional managers and supervisors should use the proper Air Force channels to procure personal protective equipment (PPE) from outside sources. Before purchasing gloves, or any protective clothing (outside Air Force sources) the supervisor will obtain documentation from the manufacturer that indicates the equipment purchased meets the appropriate test standards for the hazards anticipated.

Specialized or chemical protective

- Personnel working in battery shops or where acids, alkalis, organic solvents, and other harmful chemicals are handled will wear gloves. (Consult the technical order (T.O.), the Material Safety Data Sheets (MSDS) for each chemical used, and the local Bio-Environmental Engineer (BEE) for assistance in selecting the proper glove material.)

Some things to remember about the wear of chemical protective gloves are:

- Toxic properties of the chemicals used must be determined and taken into consideration when selecting the proper protective gloves.
- A glove should be selected on its shortest breakthrough time, since it is possible for solvents to carry active ingredients through polymeric materials.
- Chemical-resistant gloves can be used with most dry powders.
- Employees must be able to remove gloves in such a manner as to prevent skin contamination.
- It is important that contaminated PPE, which can not be decontaminated, is disposed of in a manner that protects employees from exposure to hazards, consistent with applicable environmental regulations.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**Review Questions
for
Gloves**

Question	Answer
1. Multi-use gloves are generally worn to protect the hands from injuries caused by sharp objects.	a. True b. False
2. Specialized gloves must be used when working with battery acid and other chemical hazards.	a. True b. False
3. To select the proper chemical glove, consult _____.	a. T.O. b. MSDS c. Bioenvironmental Engineering d. All of the above

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

GLOVES

Performance Checklist		
Step	Yes	No
1. Does the trainee know how to correctly utilize gloves?		
2. Does the trainee know how to properly use the Personal Protective Equipment?		
3. Does the trainee know to check the Technical Orders and the Material Safety Data Sheets pertaining to PPE?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



USE PROTECTIVE EQUIPMENT SUCH AS:

MODULE 9

AFQTP UNIT 4

SAFETY SHOES (9.4.6.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SAFETY SHOES

Task Training Guide

STS Reference Number/Title:	9.4.6. Safety Shoes
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFPD 91-2, Safety Programs • AFPD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Safety Shoes
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to correctly utilize safety shoes
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should correctly utilize safety shoes
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SAFETY SHOES

Background: Protective footwear shall be provided and worn when there is a reasonable possibility of sustaining foot injuries due to heavy or sharp objects and electrical and/or static electricity considerations. For protection of feet and legs from falling or rolling objects, sharp objects, molten metal, hot surfaces, and wet slippery surfaces, workers shall use appropriate footguards, safety shoes, or boots and leggings. Leggings protect the lower leg and feet from molten metal or welding sparks. Safety snaps permit their rapid removal.

Supervisors shall identify those areas, operations or occupations, which require protective leg or footwear. All individually issued safety footwear used in Air Force daily operations will meet the requirement of applicable ANSI Z41, *Personal Protection (Protective Footwear)* series standards.

Safety-toe shoes meeting ANSI Z41 standards are clearly identified by the manufacturer with a label or stamp placed on the inside surface of the tongue or quarter lining. There are three classes of safety-toe shoes identified in ANSI Z41; only class 75 shoes are approved for the Air Force. Currently, most safety-shoes for women meet only class 30 standards. Until class 75 shoes for women are available, the class 30 shoe may be used (29 CFR 1910.136, *Occupational Foot Protection*). Safety shoes will be sturdy and have an impact-resistant toe. In shoes, metal insoles protect against puncture wounds. Additional protection, such as metatarsal guards, may be found necessary in some types of footwear. Nonskid shoes will be worn where floors may be wet or greasy. Electrical hazard shoes are not designed to be a replacement for electrically rated matting in high voltage situations. These shoes are designed for working on low voltage circuits and as a secondary means of protection.

NOTE:

When exposed to cold temperatures and foot crushing hazards, if cold weather footwear that also provides crushing protection is not available, personnel will be issued footwear that protects against the possibility of frostbite.

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**Review Questions
for
Safety Shoes**

Question	Answer
1. Safety snaps secure legging to the safety blouse.	a. True b. False
2. The class 30 shoe may be used by all Air Force personnel.	a. True b. False
3. The _____ will identify the areas that may require protective footwear.	a. Pavements & Equipment Superintendent b. Base Civil Engineer c. Base Commander d. Shop Supervisor

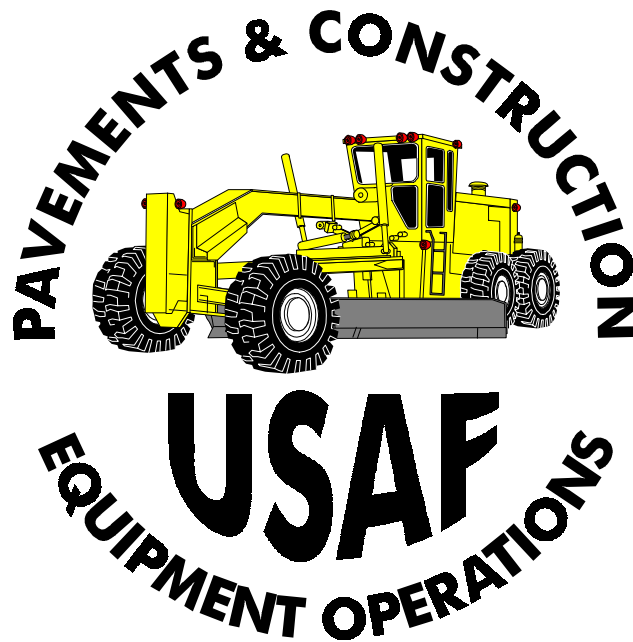
Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SAFETY SHOES

Performance Checklist		
Step	Yes	No
1. Does the trainee know how to correctly utilize safety shoes?		
2. Does the trainee know the three classes of safety shoes?		
3. Does the trainee know the Air Force requirements on safety shoes?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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USE PROTECTIVE EQUIPMENT SUCH AS:

MODULE 9

AFQTP UNIT 4

SEAT BELTS (9.4.7.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SEAT BELTS

Task Training Guide

STS Reference Number/Title:	9.4.7. Seat Belts
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Any vehicle having a seatbelt
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to correctly utilize seatbelts
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should correctly utilize seatbelts
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SEAT BELTS

Background: The use of seatbelts applies not only to the Government vehicles you operate, but also to your personal vehicles on base and on public highways. The Air Force is concerned about you personally. When you leave the base on Friday, the Air Force wants to see you on the job on Monday morning; not in a hospital with a broken leg or neck from being thrown out of a vehicle.

AFI 91-207, *USAF Traffic Safety Program*, governs the use of protective devices. Your command and perhaps even your shop may have supplemented this regulation. Learn the rules that apply to you and your job and follow them.

Seatbelts provide some protection to drivers and passengers involved in accidents; they prevent or lessen the severity of injuries. The use of seatbelts prevents the wearer from being thrown out of the vehicle and also reduces the force with which he or she is likely to strike objects within the vehicle. Many drivers have the mistaken idea that seatbelts are necessary only at high speeds. More than half of all fatal accidents occur at speeds under 40 miles per hour, and two-thirds of all fatal accidents occur within 25 miles of the victim's home. Seatbelts should be used for low-speed urban and base driving as well as for highway driving speeds. They should also be used for short trips as well as for long trips. Statistics show that the risk of serious injury or fatality is six times greater for the person who is thrown from the vehicle than for the person who is kept inside the vehicle. Use your seatbelt and be sure that your passengers have their seat belts fastened and adjusted properly when the vehicle is in motion.

SAFETY:

ANY VEHICLE THAT IS NOT EQUIPPED WITH ROLL-OVER PROTECTIVE STRUCTURE (ROPS) IS NOT REQUIRED TO HAVE A SEATBELT. CHECK OSHA STANDARDS FOR CLARIFICATION.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**Review Questions
for
Seat Belts**

Question	Answer
1. The mandatory use of seatbelts applies to government vehicles only.	a. True b. False
2. More than 2/3 of all fatal accidents occur within _____ miles of the victim's home.	a. 5 b. 25 c. 40 d. 50
3. The risk of serious injury is six times greater for a person who is thrown from a vehicle compared to a person who remains inside the vehicle.	a. True b. False

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SEAT BELTS

Performance Checklist		
Step	Yes	No
1. Does the trainee know how to correctly utilize seatbelts?		
2. Does the trainee know AFI 91-207; USAF Traffic Safety Program governs the use of protective devices?		
3. Does the trainee know it is mandatory for seatbelt use in government vehicle?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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EMPLOY SAFETY PRINCIPLES WHEN:

MODULE 9

AFQTP UNIT 6

GETTING ON/OFF EQUIPMENT (9.6.1.)

STARTING/STOPPING ENGINES (9.6.2.)

PLACING EQUIPMENT IN MOTION (9.6.3.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

GETTING ON/OFF EQUIPMENT

STARTING/STOPPING ENGINES

PLACING EQUIPMENT IN MOTION

Task Training Guide

STS Reference Number/Title:	9.6.1. Getting On/Off Equipment 9.6.2. Starting/Stopping Engines 9.6.3. Placing Equipment In Motion
Training References:	<ul style="list-style-type: none">• AFOSHSTD 91-31, Personal Protective Equipment• AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards• AFD 91-2, Safety Programs• AFD 91-3, Occupational Safety And Health• AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none">• Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none">• Construction equipment• Personal Protective Equipment (PPE)
Learning Objective:	<ul style="list-style-type: none">• The trainee should be able to correctly get on/off, start/stop, and place equipment into motion
Samples of Behavior:	<ul style="list-style-type: none">• The trainee should correctly get on/off, start/stop, and place equipment into motion
Notes:	
<ul style="list-style-type: none">• Any safety violation is an automatic failure	

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GETTING ON/OFF EQUIPMENT

STARTING/STOPPING ENGINES

PLACING EQUIPMENT IN MOTION

Background: Operating equipment safely demands your constant attention. When mounting or dismounting equipment, always face the machine and use necessary handrails and steps. Check the step areas and rails for any grease or oil and make sure they are clean and dry prior to mounting or dismounting.

Before you mount the piece of equipment, do a walk around, and tell anyone who may be near the machine to clear away. When you're ready to start the machine, make sure the transmission is in neutral or park, all control levers for operating attachments are in neutral, and that the parking brakes are set. This will keep the machine from jumping forward and keep attachments from raising or tilting immediately when the engine starts.

Before placing the equipment into motion, raise or adjust attachments as necessary, release parking brake and start out slowly, gradually reaching proper operating speed. This is necessary to give you a feel for the machine. You may want to leave it in low gear or low RPM until you get used to the characteristics of the machine.

If operating in a hazardous area, keep the machine at a slow speed and use a *spotter* as necessary. You may be required to install a spark arrester to the exhaust if you are operating in an area where fuel or munitions are stored. During winter months, you may be required to remove snow from a confined area, such as an aircraft parking ramp, or narrow streets in a housing area, this requires your utmost abilities. In situations such as this, get a spotter to identify obstacles and to keep you from getting close to vehicles or other equipment.

When stopping the equipment or shutting down for the night, idle down equipment, lower all attachments, engage parking brakes, shut the engine off, shut master switch off, and chock the wheels.

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**Review Questions
for
Getting On/Off Equipment
Starting/Stopping Engines
Placing Equipment In Motion**

Question	Answer
1. Before you mount a machine, do a walk around, clearing all personnel near the machine.	a. True b. False
2. To maintain good hydraulic pressure, start out quickly.	a. True b. False
3. What must be accomplished when shutting down equipment?	a. Lower all attachments b. Shut off engine c. Chock wheels d. All the above

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GETTING ON/OFF EQUIPMENT

STARTING/STOPPING ENGINES

PLACING EQUIPMENT IN MOTION

Performance Checklist		
Step	Yes	No
1. Does the trainee know how to correctly get on/off equipment?		
2. Does the trainee know how to correctly start/stop equipment?		
3. Does the trainee know how to start the equipment in motion?		
4. Does the trainee know how to do a walk around of the equipment?		
5. Does the trainee know to use a spotter?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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EMPLOY SAFETY PRINCIPLES WHEN:

MODULE 9

AFQTP UNIT 6

SERVICING EQUIPMENT (9.6.5.)

ADJUSTING EQUIPMENT (9.6.9)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

SERVICING EQUIPMENT

ADJUSTING EQUIPMENT

Task Training Guide

STS Reference Number/Title:	9.6.5. Servicing Equipment 9.6.9. Adjusting Equipment
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Construction equipment • Personal Protective Equipment
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to correctly service and adjust equipment
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should correctly service and adjust equipment
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

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SERVICING EQUIPMENT

ADJUSTING EQUIPMENT

Background: When adjusting or servicing equipment, shut the machine down. Do not do any servicing or adjusting when the machine is running. Equipment with exposed moving parts, such as belts, chains, flywheels, or moving arms, can present a serious safety hazard unless you use extreme care before operating and servicing it. There are too many pieces of equipment in our inventory to explain how to service and adjust each one. Refer to the service manual for each piece of equipment you are working on before attempting to service/adjust it.

SAFETY:

SERIOUS INJURY CAN RESULT IF YOU ARE NOT CAREFUL. CHECK THE OPERATORS MANUAL FOR PROPER SERVICE OR ADJUSTMENTS.

Even though most moving parts of machinery are enclosed in protective guards, it is essential that you be alert. Why? Because you could easily be pulled into a power takeoff shaft or drive shaft and end up losing an arm or hand, or even being killed.

For example, how do you think it would feel to put your elbow into the radiator fan while checking the brake fluid on a dump truck? You also need to consider whether to jack up a piece of equipment to make adjustments. Not only should the equipment not be running, but in addition, you should use the proper capacity jack, jack stands, and chocks as needed for changing tires, cutting edges, attachments etc. Remember, you are going to be working with some very heavy machinery equipment that requires you to use heavy-duty tools and equipment.

Fueling a piece of equipment while it is running is also very dangerous. An example would be fueling a gas-powered piece of equipment and spilling fuel on the hot exhaust manifold or tail pipe. Fueling diesel-powered equipment with the machine running will not produce as high a hazard as equipment, which operates on gasoline. Even so, you should always turn off all equipment before refueling.

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**Review Questions
for
Servicing Equipment
Adjusting Equipment**

Question	Answer
1. You should always leave the machine running during adjusting or servicing procedures.	a. True b. False
2. You should refer to the service manual for each piece of equipment you are working on before attempting to service/adjust it.	a. True b. False
3. When changing cutting edges on a piece of equipment, you should use proper ____.	a. Chocks b. Jack stands c. Capacity jacks d. All the above

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SERVICING EQUIPMENT

ADJUSTING EQUIPMENT

Performance Checklist		
Step	Yes	No
1. Does the trainee know the reference used to properly service the equipment?		
2. Does the trainee know how to properly service the equipment?		
3. Does trainee know proper techniques for making adjustments to equipment?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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EMPLOY SAFETY PRINCIPLES WHEN:

MODULE 9

AFQTP UNIT 6

LOADING EQUIPMENT (9.6.6.)

LOADING MATERIALS (9.6.10.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

LOADING EQUIPMENT

LOADING MATERIAL

Task Training Guide

STS Reference Number/Title:	9.6.6. Loading Equipment 9.6.10. Loading Material
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Tractor-Trailer • Construction equipment & materials • Personal Protective Equipment
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to safely load equipment and materials
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should safely load equipment and materials
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

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LOADING EQUIPMENT

LOADING MATERIAL

Background: As a tractor-trailer operator, you must have an understanding of basic procedures and safety rules used when transporting construction materials and equipment. Improper loading of any load can be dangerous to you and others, cause damage to the tractor-trailer, affect the steering of the tractor, and more. The operator is responsible to inspect the load regardless of who loaded or secured the load. You should recognize overloading and poorly balanced loads/weight, and ensure the load is properly tied, strapped, or chained down and covered, whether or not you loaded and secured the load yourself.

The operator is responsible for knowing how much weight is loaded on the tractor-trailer and knowing the total weight of both the unit and cargo. The terms used for vehicle weight are as follows:

- **Payload allowance or payload** - Maximum weight of material that can be transported.
- **Gross vehicle weight (GVW)** - Total weight of a single vehicle plus its load.
- **Gross combination weight (GCW)** - Total weight of a powered unit including the trailer(s) and cargo.
- **Gross vehicle weight rating (GVWR)** - Maximum GCW specified by the manufacturer for a specific combination of vehicles, including the load.
- **Curb weight** - Total weight of an empty truck with the fuel tank, cooling system, and crankcase filled. Additionally it includes the weight of tools, spare tire, and all other equipment specified as standard. However, this weight does not include the weight of the payload and operator.
- **Axle weight** - Weight transmitted to the ground by one axle or one set of axles.
- **Tire load** - Maximum safe weight a tire can carry at a specified pressure. This rating is stated on the side of each tire.
- **Suspension systems** - Have a manufacturer's weight capacity rating.
- **Coupling device capacity** - Rated for the maximum weight they can pull and/or carry.

Distribution of cargo has a definite bearing on the life of tires, axles, frame and other parts of the vehicle. The fact that a truck or trailer is not loaded beyond its gross vehicle weight capacity does not mean that the individual tires and axles may not be overloaded by faulty distribution of the cargo. Additionally, some states have maximums for GVW, GCW, and axle weights. Axle weights prevent the overloading of bridges and roadways.

To load a tractor-trailer properly, you have to determine the center of the payload. The position of the center of the payload is roughly centered on the trailer body, because the front wheels of the tractor seldom carry any of the payload. When you are loading, ensure that the maximum capacity of the vehicle is not exceeded over any one axle and, if possible, that loads are distributed so there is less than maximum axle loading. Examples of approximate distribution of total weight are shown in Figure 1.

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The payload weight must be distributed over the body properly so the percentage of weight carried by the front axle and that carried by the rear axle equals the ratio for which the vehicle was designed, Figures 1 & 2. The tractor-trailer can be adapted to transport various types of materials, such as fragile, bulky, compact, dense, rough and high center-of-gravity items. To accommodate a variety of items, you must plan the load, properly prepare the tractor-trailer, and secure the load to the vehicle. Securing the load by restraining it with proper lines, cargo straps, chains, or fastened by tie-down or binders should keep it from shifting or falling off the vehicle. Should a load fall from a vehicle, it could fall on oncoming traffic, underpasses, culverts, bridge abutments, and create a hazard to pedestrians. Protect fragile items from damage by chafing (rubbing together) with cardboard, paper, cloth, or other filler material.

Loading equipment onto a trailer is dangerous. In most cases the equipment will be just as wide as the trailer with little room for error. Always use a spotter to ensure the equipment is on the trailer straight and that you do not run it off the trailer. Regardless of what type of equipment you are loading or what type of trailer you are using, the following general rules apply:

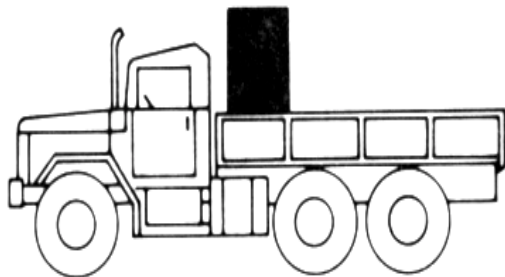
- Have the equipment in line with the trailer and transmission of the equipment you are loading placed in low gear.
- Increase the throttle of the vehicle just high enough to load the vehicle on the trailer.
- Watch and follow your spotter.
- Do not steer sharply.
- Do not stop except for an emergency.
- For crawler machines only, move slowly at the top of the ramp or a jarring fall can result when the machine is past the balance point.
- Center the equipment on the trailer to load the truck -tractor and trailer axles evenly.

Regardless of what type of truck you are operating, material you are hauling, or how far you are hauling it, you must secure your load to prevent it from falling or shifting. When a load shifts, the weight of the load has moved also. This could cause an axle to be overloaded and mechanical failure to occur.

Certain conditions can cause cargo being transported to shift; however, almost all cargo movement can be controlled with the use of proper blocking and bracing. Blocking is used in the front, back, and/or sides of a piece of cargo to keep it from sliding. Blocking should be shaped to fit snugly against the cargo and should be secured to the deck of the trailer to prevent the cargo from moving. Bracing is also used to prevent movement of the cargo. Bracing is placed from an upper part of the cargo to the floor and/or walls of the cargo compartment.

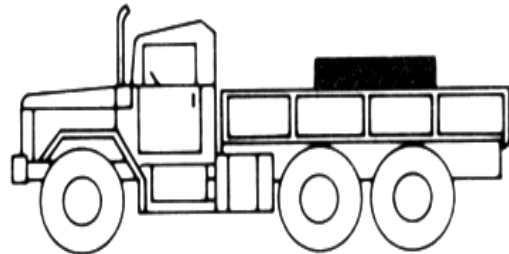
Because cargo loads have a tendency to shift, a common rule of thumb is to inspect the cargo and the securing devices before departing and within 25 miles after beginning the trip. Always check the cargo and securing devices as often as necessary during a trip to keep the load secured. Inspect the cargo and securing devices after you have driven for three hours or 150 miles and after every rest break taken during the trip.

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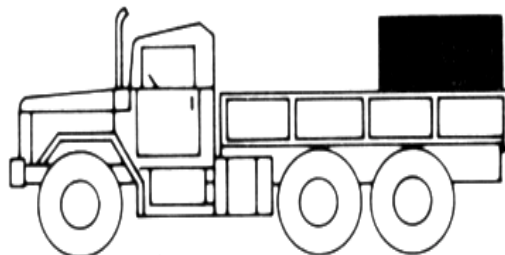
WRONG

This will bend the frame, overload front tires, make steering harder.



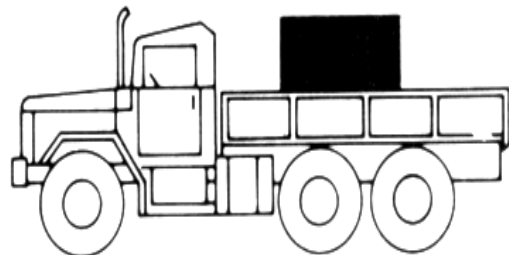
RIGHT

Place heavy part of load near rear axle for proper tire loading and to keep frame from bending.



WRONG

This kind of weight distribution bends the frame, overloads rear tires, and makes steering almost impossible.



RIGHT

Set a concentrated load just ahead of the rear axle with the longest side on the floor, if possible.

Figure 1, Correct Placement of Payload

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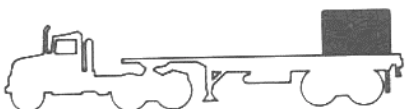


WRONG



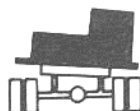
RIGHT

Use the right vehicle for the job.



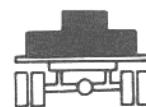
WRONG

This overloads trailer rear wheels. Brakes won't brake properly, rubber scuffs away. Distribute the load over the full trailer floor.



WRONG

This overloads one spring and set of tires. Brakes lock on the light side, cause skids.



RIGHT

Nothing overloaded. Frame won't twist and loosen cross-member rivets.



WRONG

This overloads and shortens tire life, bends the truck rear axle housing. Applying the trailer brakes may lock the wheels, cause flat spots and skidding.



RIGHT



WRONG



If you are not careful, this will happen.

Figure 2, Correct Placement of Payload

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

When loading steel, lumber, or anything that must be unloaded with a forklift or crane, you should place 4"x4"x4' dunnage or pallets under the load. This aids in getting forks or cables in and out from under the load.

Loads must be secure enough to prevent movement in any direction, which means movement forward, aft, vertically, and horizontally, Figure 3.

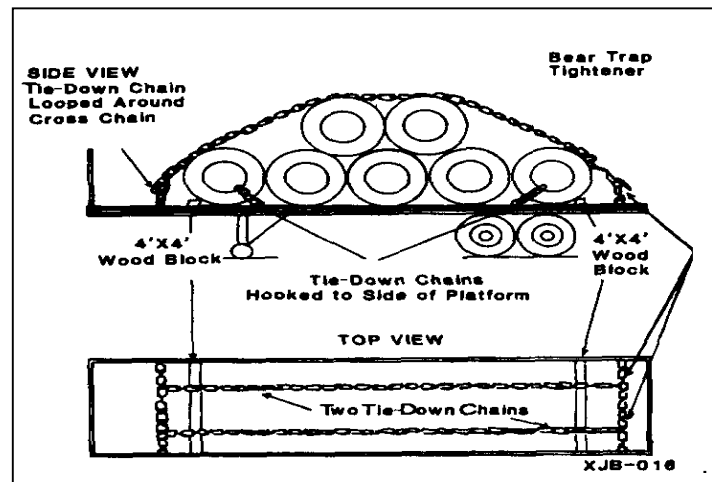


Figure 3, Loading and Securing Drums on Vehicle Bed.

A tie-down assembly must have a safe working load (SWL) of 1-1/2 times the weight of the load to be restrained. For example, to restrain a crawler tractor weighing 55,000 pounds, you need a tie-down assembly for 82,500 ($55,000 \times 1.5 = 82,500$). This means you need eight 1/2 inch chains with SWL of 11,000 pounds each and eight binders with 1/2 inch hooks.

On flatbed or lowboy trailers without sides, cargo must be secured to the trailer to keep it from shifting and falling off. In closed van trailers, tie-downs can also prevent cargo from shifting that may affect the handling of the vehicle. Tie-downs must be proper type and strength. The combined strength of all tie-downs must be strong enough to lift 1-1/2 times the weight of the piece of cargo tied down. Chains make up most of our tie-down assemblies. The size of chains normally used by the Air Force, are 3/8 and 1/2 inch. They are made of class A type alloy steel. You should know the safe working load of any chain before you use it. Chains used for restraints should have grab hooks on both ends. Attach chain hook as close as possible to the tie-downs on the trailer and on the equipment. This prevents the chain from getting slack once the binder is attached and closed.

Binders are chain-tightening devices that are made of steel with swivels, chain hooks, and a lever (Figures 4-6). You hook one of the binder hooks on the chain near the trailer deck and the other higher up the chain near the load. Pulling the lever down tightens the chain. A 3-inch diameter, 3-foot-length pipe, commonly known by the term "cheater bar" is normally used on the lever to provide more leverage when closing the binder.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

NOTE:

Use extreme caution when using a cheater bar to release chains that are secured with a spring type binder. When you are closing and opening the lever, do not put your head or arm in line with the lever. If you lose your grip, the lever could open and hit you, causing serious injury.



Figure 4, Typical Lever Binder.



Figure 5, Typical Lever Binder.



Figure 6, Typical Ratchet Binder.

SAFETY:

RATCHET BINDERS HAVE NO TENSION SPRINGS TO ALLOW FLEX. USE EXTREME CAUTION; DO NOT USE A CHEATER BAR. DO NOT OVER TIGHTEN CHAINS USING THE RATCHET BINDER. ONCE A CHAIN HAS BEEN STRETCHED IT MUST BE REPLACED.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**Review Questions
for
Loading Equipment
Loading Material**

Question	Answer
1. Axle weights prevent the overloading of ____.	a. Bridges b. Roadways c. Trailer axles d. A and B
2. Inspect cargo and securing devices within 25 miles after beginning the trip and again every ____ hours or ____ miles.	a. 2; 100 b. 3; 150 c. 4; 200 d. 5; 250
3. A “cheater bar” is used to tighten all types of binders.	a. True b. False

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LOADING EQUIPMENT

LOADING MATERIAL

Performance Checklist		
Step	Yes	No
1. Does the trainee know the proper procedures for loading equipment?		
2. Does the trainee know the proper procedures for hauling equipment?		
3. Does the trainee know the basic procedures and safety rules used when transporting construction materials and equipment?		
4. Does the trainee know that chains make up most of our tie-down assemblies?		
5. Does the trainee know you must have special permits for oversize and overweight loads?		
6. Does the trainee know to place chock blocks before or behind the drive wheels?		
7. Does the trainee know how to load a tractor-trailer?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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EMPLOY SAFETY PRINCIPLES WHEN:

MODULE 9

AFQTP UNIT 6

HAULING EQUIPMENT (9.6.8.)

HAULING MATERIALS (9.6.12.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

HAULING EQUIPMENT

HAULING MATERIAL

Task Training Guide

STS Reference Number/Title:	9.6.8. Hauling Equipment 9.6.12. Hauling Material
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Tractor-Trailer • Construction equipment & materials • Personal Protective Equipment
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to safely haul equipment and materials
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should safely haul equipment and materials
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

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HAULING EQUIPMENT

HAULING MATERIAL

Background: The maximum payload of a truck is determined by subtracting the curb weight and weight of the driver (Example, 175 pounds) from the manufacturer's gross vehicle weight rating. The maximum gross vehicle weight rating for a specified operating condition applies only when tires and equipment on the truck are according to the manufacturer's recommendations for the specified operating condition; that is, ideal, moderate, or severe.

- **Ideal condition** - When a truck is operated over improved, level roads, such as asphalt or concrete, at constant, relatively moderate speeds with no adverse weather or road conditions. Under these conditions, recommended payload equals 100 percent of maximum permissible payload.
- **Moderate condition** - When a truck is operated at high speeds over improved highways, such as asphalt or concrete, with or without long steep grades. Moderate conditions also include operating at moderate speeds over semi-improved roads with gravel or equivalent surfacing, in gently rolling country with few steep grades and no adverse weather or road conditions. Under these conditions, recommended payload equals 80 percent of maximum permissible payload.
- **Severe condition** - When a vehicle is operated off paved surfaces on rough or hilly terrain or over unimproved or pioneer access roads with deep ruts, holes, or steep grades. These conditions also include operating where traffic has created deep holes or ruts in heavy snow, covering normally good city streets or highways. Under these conditions, the recommended payload equals 64 percent of the maximum permissible payload.

Oversize and overweight loads require special permits. Driving is usually limited to certain times of the day and requires special equipment, such as "wide load" or "oversize load" signs, flashing lights, flags, police escort or pilot vehicles bearing warning signs and/or flashing lights. When traveling through 3 or 4 states, you may need special permits for each state.

NOTE:

Weight, height, and width limitations are set forth by each state. Always know the height, weight, and width of the load you are pulling and the regulations for the state(s) you are to operate in.

Operation of the tractor and trailer is much more difficult than that of most other vehicles. Allowances must be made for the added length when turning, backing and passing other vehicles. Space for maneuvering this large vehicle into position for loading and unloading must also be considered.

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When backing a tractor-trailer combination, reverse the procedures that are used to back a straight truck. For example, if you want the trailer to go to the left, turn the steering wheel to the right or place hand on the bottom center of steering wheel, move hand left to go left and right to go right. After the trailer is headed in the desired direction, turn the steering wheel slowly to the left. This puts the tractor in the same line of travel as the trailer and prevents the tractor and trailer from jackknifing.

“Jackknife”, means a condition where the tractor and trailer become jammed together at an acute angle. Backing the semi-trailer to the left, known as “sight side”, backing is easier and the recommended method whenever possible. When backing to the left, you have a better view of the backing area.

When making a turn with the tractor and trailer, you must allow for the overall length of the unit. Keep in mind that this unit is “hinged” in the middle and the trailer has a tendency to cut the corners rather than follow the tractor. For this reason, it is necessary to make a wider turn than when turning with a straight truck. However, on a right turn, the unit should be kept close enough to the road edge to eliminate the possibility that a following vehicle might attempt to pass on the right. When preparing for the turn, pull straight ahead into the intersection; continue until the turn can be made without the trailer wheels running over the curb or off the road on the inside corner.

In normal operation, the foot or service brakes alone are used since they control the tractor and trailer simultaneously. The most efficient braking power is at the point just before the brakes lock up. The trailer brakes can be controlled independently of the tractor brakes. This is done with a lever usually mounted on the steering column. You must exercise care when applying the trailer brakes so that you do not pull the lever too far and lock the wheels. Braking in an emergency or under hazardous road conditions, such as steep grades or slippery surfaces, creates the most difficult situation to maintain control and stopping of your tractor and semi-trailer unit.

The proper use of the semi-trailer hand brake or “Johnson Bar” in these situations is critical, as the operator is not able to judge how much pressure to apply to the hand brake before the wheels of the trailer become locked. The amount of pressure to apply will vary because of road condition and gross vehicle weight. Skidding tires caused by locked trailer brakes will not allow you control of the trailer. The use of the trailer hand brake and the tractor foot brakes simultaneously, to align and control both units during emergencies or under hazardous condition, requires the touch of an expert. The semi-trailer hand brake should never be applied alone to stop the tractor/trailer unit. The best use of the semi-trailer brakes is for coupling and uncoupling, and preventing rollback when stopped on an incline.

Some tractors are equipped with an engine brake, also known as the Jacob’s or Jake Brake. The engine brake is applied using a switch located on the dashboard. The engine brake is used when driving in mountainous terrain or descending steep grades. The engine brake opens the exhaust valves to the engine, which causes decompression in the engine and slows the vehicle. The Jake Brake can be used in any situation to reduce the speed of the truck; this could include driving in bad weather, heavily congested traffic etc.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**Review Questions
for
Hauling Equipment
Hauling Material**

Question	Answer
1. What are the 3 operating conditions normally encountered when hauling equipment and materials?	a. Ideal, moderate, and severe b. Normal, harsh, and mountainous c. Moderate, severe, and normal d. Ideal, normal, and mountainous
2. Oversize loads require special permits.	a. True b. False
3. The Jake Brake is used whenever reduced engine speed is required.	a. True b. False
4. To turn a trailer to the left when backing, turn the steering wheel to the right.	a. True b. False

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HAULING EQUIPMENT

HAULING MATERIAL

Performance Checklist		
Step	Yes	No
1. Does trainee know the 3 operating conditions?		
2. Does trainee know the proper procedures for backing a tractor-trailer combination?		
3. Does trainee know the proper use for the Johnson Bar?		
4. Does trainee know when to use the Jake Brake?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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EMPLOY SAFETY PRINCIPLES WHEN:

MODULE 9

AFQTP UNIT 6

UNLOADING EQUIPMENT (9.6.7.)

UNLOADING MATERIALS (9.6.11.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

UNLOADING EQUIPMENT

UNLOADING MATERIAL

Task Training Guide

STS Reference Number/Title:	9.6.7. Unloading Equipment 9.6.11. Unloading Material
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a, 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Tractor-Trailer • Construction equipment & material • Personal Protective Equipment
Learning Objective:	<ul style="list-style-type: none"> • The trainee should be able to safely unload equipment and materials
Samples of Behavior:	<ul style="list-style-type: none"> • The trainee should safely unload equipment and materials
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

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UNLOADING EQUIPMENT

UNLOADING MATERIAL

Background: When you park a tractor-trailer combination, do not depend solely upon the air brakes to hold the vehicle. Place chock blocks before or behind the drive wheels, as required, to keep the wheels from rolling if the unit is to be left unattended. The following 7 steps should be taken when unloading equipment:

- Always take enough time to do the job safely
- Always read and observe *all* warning statements
- Always follow manufacturer's instructions when tightening or loosening load binders
- Always make sure your footing is secure prior to use
- Always keep your body clear of the load binder handle when releasing
- Always consider the safety of nearby workers as well as yourself when operating a load binder
- Never operate a load binder while standing on the load

SAFETY:

ALWAYS CHECK THE LOAD FOR ANY SHIFTING BEFORE REMOVE ANY BINDERS. WHEN BACKING, ALWAYS USE A SPOTTER.

Unloading equipment and material

To perform this task, follow these steps:

Step 1: Place equipment as close to the delivery site as possible

- If you are using a forklift to unload a trailer, keep your turns and travel to a minimum. Ensure that the tractor/trailer is secure before unloading equipment. Place tractor in neutral/park, apply tractor/trailer brakes and chock the wheels.

Step 2: Remove all binders and chains

- Prior to removing binders, remove any safety wire that was used to secure the binder. If the lever type binder (Figure 1) or the spring type binder (Figure 2) were used, then use a pry bar, cheater bar or a Binder Jack (Figure 3) to loosen the binder. If you are going to use the Binder Jack then follow these steps (Figure 4):
 - Position Binder Jack in front of binder handle with saddle in back; flat position.
 - Ram the Binder Jack forward until binder handle reaches back strike plate of the Binder Jack scoop.
 - Lift Binder Jack handle up until saddle base is seated firmly on chain.
 - With *both hands* on Binder Jack bar, firm footing and all body parts clear of binder handle, pull down Binder Jack handle until binder is fully released.

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Figure 1, Lever Type Load Binder.



Figure 2, Spring Load Binder.

SAFETY:

DO NOT USE BINDER JACK HANDLE TO RELEASE LOCKED LOAD BINDERS. EXTREME CAUTION SHOULD ALWAYS BE USED WHEN WORKING AROUND TIGHT LOAD BINDERS.

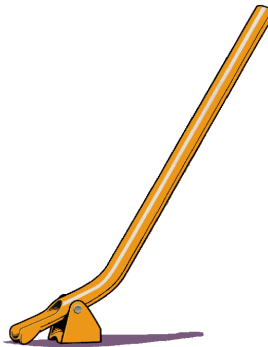


Figure 3, Binder Jack.

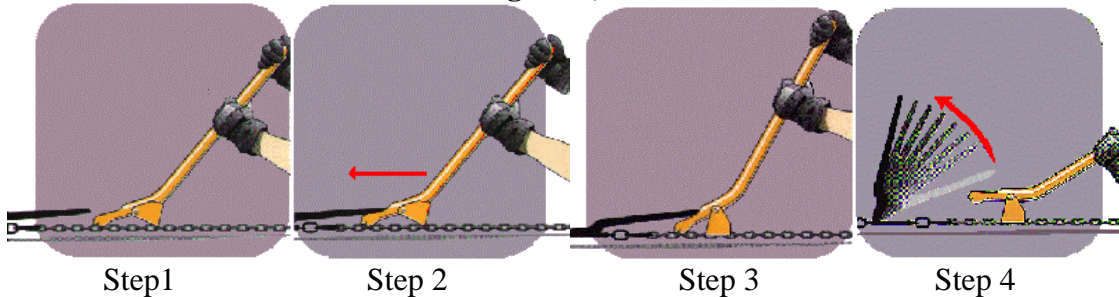


Figure 4, Binder Jack procedures.

SAFETY:

BEFORE REMOVING THE LAST CHAIN AND BINDER, YOU SHOULD START THE PIECE OF EQUIPMENT THAT YOU ARE UNLOADING (IF APPLICABLE) AND ENSURE THE BRAKES ARE APPLIED AND THE TRANSMISSION IS PLACED IN NEUTRAL/PARK.

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Step 3: Use a spotter when backing

- If you are using a dump truck to haul rock, fill dirt, etc. you should always use a spotter. Before dumping, you should check overhead for electrical lines, trees, etc. to ensure clearance.

SAFETY:

IF USING A TILT TRAILER ENSURE THE TILT LEVER IS UNLOCKED BEFORE BACKING ANY EQUIPMENT OFF OF THE TRAILER TO AVOID DAMAGE TO THE TRAILER.

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

**Review Questions
for
Unloading Equipment
Unloading Material**

Question	Answer
1. You should ensure the tractor/trailer is secure and as close to the delivery site as possible.	a. True b. False
2. You should inspect cargo before removing any binders to avoid any injury.	a. True b. False
3. A “cheater bar” can be used to loosen binders.	a. True b. False

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

UNLOADING EQUIPMENT

UNLOADING MATERIAL

Performance Checklist		
Step	Yes	No
1. Does the trainee know the proper procedures for unloading equipment?		
2. Does the trainee know the proper procedures for unloading materials?		
3. Does the trainee know the basic procedures and safety rules used when unloading construction materials and equipment?		
4. Does the trainee know that chains make up most of our tie-down assemblies?		
5. Does the trainee know to place chock blocks before or behind the drive wheels?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM

MODULE 9

AFQTP UNIT 7

ELECTRICAL HAZARDS AND PRECAUTIONS

(9.7.)

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

ELECTRICAL HAZARDS AND PRECAUTIONS***Task Training Guide***

STS Reference Number/Title:	9.7. Electrical Hazards and Precautions
Training References:	<ul style="list-style-type: none"> • AFOSHSTD 91-31, Personal Protective Equipment • AFI 91-302, Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Standards • AFD 91-2, Safety Programs • AFD 91-3, Occupational Safety And Health • AFIND 17, Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications
Prerequisites:	<ul style="list-style-type: none"> • Possess as a minimum a 3E231 AFSC
Equipment/Tools Required:	<ul style="list-style-type: none"> • Tools • Personal Protective Equipment
Learning Objective:	<ul style="list-style-type: none"> • Trainee should know how to properly inspect, utilize, clean, repair, and store tools and know the hazards of operating electrical equipment
Samples of Behavior:	<ul style="list-style-type: none"> • Trainee should properly utilize electrical tools and know the hazards of operating electrical equipment
Notes:	
<ul style="list-style-type: none"> • Any safety violation is an automatic failure 	

Notice. This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

ELECTRICAL HAZARDS AND PRECAUTIONS

Background: You may not use many hand-powered tools, but if you do, you should know the hazards and the precautions to take to prevent electrical injury. Several Air Force publications deal with electric tools and related hazards. The Air Force and industry have found that the correction of minor problems prevents the development of major problems. This type of maintenance, in the long run, saves time, saves money, extends the service life of the machine, and reduces the number of accidents. Although you may not have to completely disassemble shop tools and equipment, you must do routine maintenance on these items according to Technical Orders or manufacturer's instructions.

Electrical hazards and grounds

- Several Air Force publications deal with electric tools and related hazards. The Air Force also abides by the rules in the National Code and the National Electric Safety Code. Since this is such a broad subject, we will limit it to proper grounding, cord care, and safe operation of electrical power tools.

Proper grounding

- Electrical tools must be equipped with a polarized (grounding) plug and a special cord with a grounded conductor. Also, the grounding plug is useless as a ground unless plugged into a suitable grounded receptacle. The objective is to ensure that there is a metallic connection of low resistance directly from all metal surfaces of an electric tool to a ground. To break off the ground prong on an electric tool is to break the safety device that protects you. To cut the ground is unsafe. Portable tools and appliances protected by a system of double insulation or its equivalent however do not require grounding.

Cord care

- It is important to protect the cord on your power equipment. This is also true of extension cords. You must protect the conductors in the cords and the plugs to provide safe operation. Scraping, kinking, or stretching, as well as exposure to grease and oil, damages electrical cords. If you use an extension cord, make sure it has a separate grounding conductor and grounding-type plugs. This means that you cannot use a two-wire extension cord, except when using a double insulated tool.

Safe operation of electrical power tools

- Here is a list of precautions to take when using electrically powered tools:
 - Inspect the equipment, especially the external wiring before you use it.
 - Use safety glasses or a face-shield where chips or dust could fly.
 - Do not wear loose gloves or loose clothing while using rotating equipment.
 - Change accessories with the power turned off and the cord unplugged.
 - Remove safety guard only when exchanging accessories.
 - Make sure the guard is in place before starting the tool.

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**Review Questions
for
Electrical Hazards and Precautions**

Question	Answer
1. Electrical tools must be equipped with a polarized plug.	a. True b. False
2. Portable tools protected by a system of double insulation must still be grounded.	a. True b. False

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ELECTRICAL HAZARDS AND PRECAUTIONS

Performance Checklist		
Step	Yes	No
1. Does the trainee know how to properly utilize electrical tools and know the hazards of operating electrical equipment?		
2. Does the trainee know the Air Force abides by the rules in the National Electric Code?		
3. Does the trainee know electrical tools must be equipped with a polarized plug?		

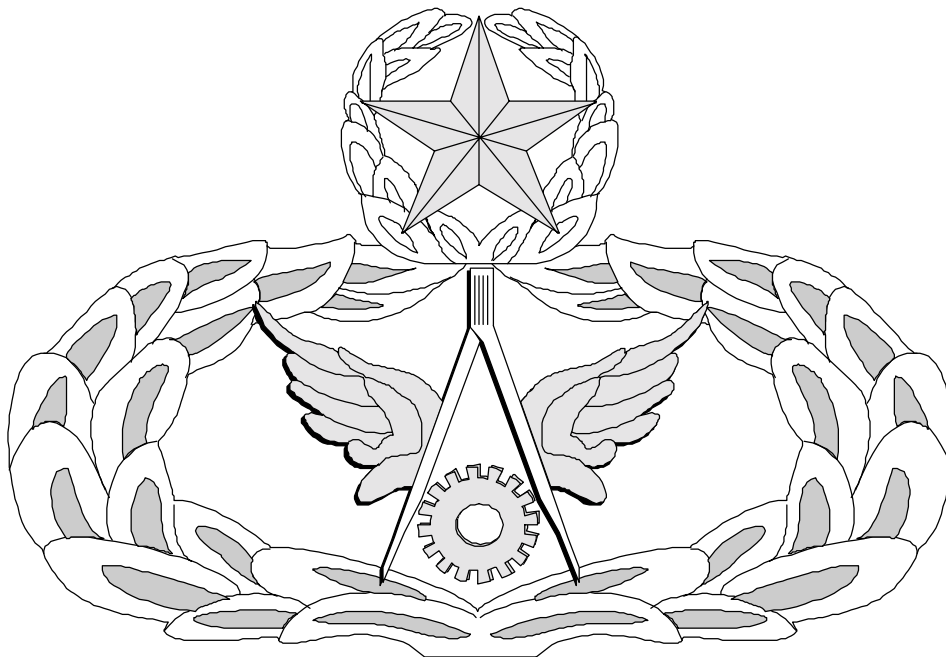
FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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Air Force Civil Engineer

QUALIFICATION TRAINING PACKAGE (QTP)

REVIEW ANSWER KEY



For
PAVEMENTS & CONSTRUCTION EQUIPMENT OPERATOR

(3E2X1)

MODULE 9

AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH)
PROGRAM

Notice This AFQTP is NOT intended to replace the applicable technical references nor is it intended to replace hands-on training if equipment is available. It is to be used in conjunction with these for training purposes only.

Key-1

EYE PROTECTORS

(3E2X1-9.4.1.)

Question	Answer
1. What is generally considered the “single most important piece of personal protective equipment?”	d. Eye protection
2. What procedures must be followed when wearing metal-framed eye protection near an energized circuit?	a. Secure eye protection to head
3. Normal street frames with safety lenses may be substituted for safety spectacles.	b. False
4. Goggles and spectacles should be cleaned with soap and warm water.	a. True

EAR PROTECTORS

(3E2X1-9.4.2.)

Question	Answer
1. The only sounds dangerous to hearing are high-intensity sounds.	b. False
2. Formable earplugs are not reusable.	b. False
3. You should not get earmuffs wet.	b. False
4. There are _____ types of insert style earplugs.	b. 3

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SAFETY HELMETS

(3E2X1-9.4.3.)

Question	Answer
1. Safety helmets provide protection from _____.	d. All the above
2. The distance between the top of the head and the underside of the shell should be adjusted to _____.	d. Manufacturer's requirement
3. ANSI classifies safety helmets in _____ classifications.	b. 3
4. Safety helmets can be customized by painting and adding stickers.	b. False

GLOVES

(3E2X1-9.4.5.)

Question	Answer
1. Multi-use gloves are generally worn to protect the hands from injuries caused by sharp objects.	a. True
2. Specialized gloves must be used when working with battery acid and other chemical hazards.	a. True
3. To select the proper chemical glove, consult _____.	d. All the above

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SAFETY SHOES

(3E2X1-9.4.6.)

Question	Answer
1. Safety snaps secure legging to the safety blouse.	b. False
2. The class 30 shoe may be used by all Air Force personnel.	b. False
3. The _____ will identify the areas that may require protective footwear.	d. Shop supervisor

SEAT BELTS

(3E2X1-9.4.7.)

Question	Answer
1. The mandatory use of seat belts applies to government vehicles only.	b. False
2. More than 2/3 of all fatal accidents occur within _____ miles of the victim's home.	b. 25
3. The risk of serious injury is six times greater for the person who is thrown from a vehicle compared to a person who remains inside the vehicle.	a. True

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GETTING ON/OFF EQUIPMENT

STARTING/STOPPING ENGINES

PLACING EQUIPMENT IN MOTION

(3E2X1-9.6.1., 9.6.2. & 9.6.3.)

Question	Answer
1. Before you mount a machine, do a walk around, clearing all personnel near the machine.	a. True
2. To maintain good hydraulic pressure, start out quickly.	b. False
3. What must be accomplished when shutting down equipment?	d. All the above

SERVICING EQUIPMENT

ADJUSTING EQUIPMENT

(3E2X1-9.6.5. & 9.6.9.)

Question	Answer
1. You should always leave the machine running during adjusting or servicing procedures.	b. False
2. You should refer to the service manual for each piece of equipment you are working on before attempting to service/adjust it.	a. True
3. When changing cutting edges on a piece of equipment, you should use proper ____.	d. All the above

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LOADING EQUIPMENT

LOADING MATERIAL

(3E2X1-9.6.6. & 9.6.10.)

Question	Answer
1. Axle weights prevent the overloading of _____.	d. Both A & B
2. Inspect cargo and securing devices within 25 miles after beginning the trip and again every _____ hours or _____ miles.	b. 3; 150
3. A “cheater bar” is used to tighten all types of binders.	b. False

HAULING EQUIPMENT

HAULING MATERIAL

(3E2X1-9.6.8. & 9.6.12.)

Question	Answer
1. What are the 3 operating conditions normally encountered when hauling equipment and materials?	a. Ideal, moderate, and severe
2. Oversize loads require special permits.	a. True
3. The Jake Brake is used whenever reduced engine speed is required.	b. False
4. To turn a trailer to the left when backing, turn the steering wheel to the right.	a. True

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UNLOADING EQUIPMENT

UNLOADING MATERIAL

(3E2X1-9.6.7. & 9.6.11.)

Question	Answer
1. You should ensure the tractor/trailer is secure and as close to the delivery site as possible.	a. True
2. You should inspect cargo before removing any binders to avoid any injury.	a. True
3. A “cheater bar” can be used to loosen binders.	a. True

ELECTRICAL HAZARDS AND PRECAUTIONS

(3E2X1-9.7.)

Question	Answer
1. Electrical tools must be equipped with a polarized plug.	a. True
2. Portable tools protected by a system of double insulation must still be grounded.	b. False

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